ATARI

Applying The Atari

by Jeff Brenner

This month we've got an interesting test/study program for students and teachers. We'll also look into January's banner program, reader mail and DOS 3, plus I'll reveal Atari's new address. But first let's see what has been going on in Sunnyvale, CA.

Atari News

$119.95—that's the retail price of the Atari 800XL announced by Jack Tramiel in the midst of the holiday buying season. That's quite an unbelievable price (several years ago, a 48K Atari 800 would have cost over ten times the amount) and I would find it even more unbelievable if Atari were actually making money from them.

The Atari people tell us that the price break is the result of "lower production costs." Maybe, but let's look at the real situation that resulted in the dramatic price change: The data is November 1984. Atari is in debt—it seems like they owe millions to every company in the United States. While these companies are trying to quickly get their money from what they perceive to be a good Chapter 11 candidate, Jack Tramiel and his crew are drowning in unsold Atari 800XLs. So, Tramiel proudly announces his "$119.95 Atari 800XL" plan (or more accurately, his "quick-cash" plan), Commodore headquarters explodes in confusion and perspiration, and everybody runs out to get the lowest-priced 64K computer on the market.

Atari probably drew away a significant portion of sales from Commodore over the holiday season, but no one can really be sure. The new price had an even more important effect for Atari in that many retailers who had dropped their line resumed selling Atari products with the irresistible prices. This means that Atari might have a wider distribution network for its newer computers. Incidentally, we'll have complete information on Atari's new units as soon as it becomes available.

Programming Tips

Every few months I'll be printing a Programming Tips section in which useful hints and ideas sent in by readers will be listed. If you have any programming suggestions or short, handy programs from which others may benefit, send them in. If your idea is printed, I'll send you a three-dimensional laser-etched hologram sticker. Some of these fascinating stickers were produced under license from Atari when designers were attempting to develop a holographic video game.

Reader Mail

Please send me some literature pertaining to software for the Atari Home Computer 800. Software programs are limited here in Panama. Therefore, we must rely on computer supplies from companies abroad.

Candida B. Carteret
Panama—APO Miami

I am sending you a list of some Atari software distributors and manufacturers that sell to the public. Others who want this list should send a self-addressed stamped envelope. Your best bet is to write to these companies and request their catalogs. You also might want to make some contacts with Atari users groups in the United States. Many of these groups have public domain software which they trade or sell at inexpensive prices. Computer Shopper's "Users Groups" section has a generous listing of these groups.

I am trying to translate a short BASIC program into assembly language. My problem is that I cannot figure out how to translate a BASIC line such as "IF A>B THEN GOTO 100." I know I need to use a CMP and a branch statement, but I become confused with the carry bit. Both A and B are less than 256 so there is no need for comparisons greater than one byte. I am relatively new to assembly language, so any help you can give me would be greatly appreciated.

Bill Foster
Fayetteville, NC

The CMP operation compares the quantity following the CMP with the value in the accumulator. When one quantity is compared with another, the computer, in effect, subtracts one from the other, although neither quantity is actually changed. The result of this subtraction determines the combination of internal flags

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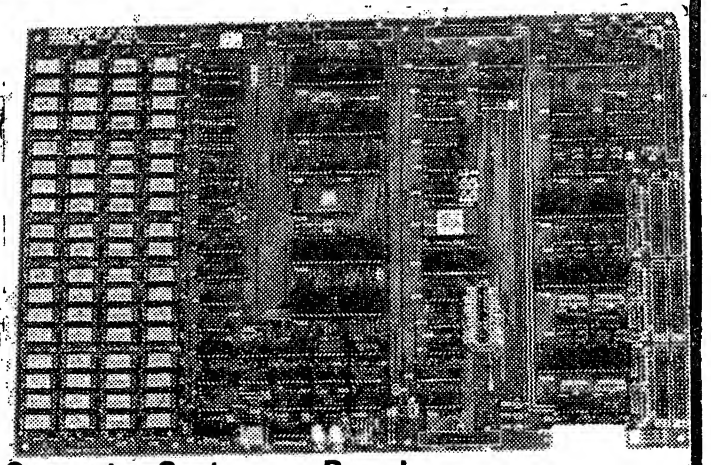

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that are set. If the two quantities are equal, the result of the subtraction is zero and the zero flag is set. Thus, a BEQ or BNE instruction causes the computer to refer to the zero flag to determine whether or not to branch.

What you need to be concerned with is the carry flag. When a larger quantity is compared to a smaller quantity, as in:

```
LDA #50
CMP #100
```

the carry bit is cleared. This condition can therefore be checked with the BCC, or Branch if Carry Clear, operand. On the other hand, when a smaller quantity is compared to an equal or larger quantity, as in:

```
LDA #100
CMP #50
```

or in:

```
LDA #100
CMP #100
```

the carry bit is set, and the condition can be checked with the BCS, or Branch if Carry Set, operand. Since the computer performs its own subtraction when comparing two quantities, these same carry flag rules apply when subtracting one quantity from another. Figure 1 gives sample IF-THEN statements and their assembly language equivalents.

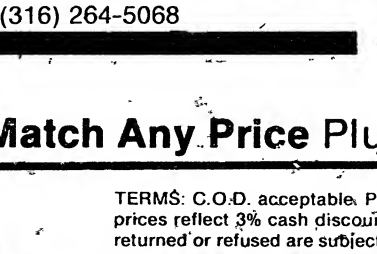

Figure 1

DOS 3

I finally received DOS 3 from Atari a few weeks ago and will be answering questions about it in the future. I purchased my 1050 drive months before DOS 3 was released and have been waiting for it ever since. Those of you who have a 1050 drive but do not have DOS 3, you're entitled to it. I managed to discover Atari's customer relations address, so write to them, tell them your drive's serial number, and ask for a copy:

ATARI CUSTOMER RELATIONS
390 Caribbean Drive
Sunnyvale, CA 94089
(408) 745-4851

Figure 2

Regarding DOS 3, many have questioned as to whether a DOS 3 disk can be converted to DOS 2. While it is possible to convert DOS 2 files into DOS 3 files (by selecting the ACCESS DOS 2 function), as of yet I know of no program to do the opposite. However, I see no reason why such a program cannot be produced. If any readers know of such a program or have developed one, tell us about it. Meanwhile, here is a simple solution for those of you who are reluctant to permanently "DOS 3" a program: Use DOS 3 to create your programs. When you want to change a DOS 3 program to a DOS 2 one, save the program to cassette. Then turn off the computer, boot up with DOS 2 and load the program from cassette. You can then save it on the DOS 2 disk. Let's hope a faster solution is available soon.

Banner Program Mystery

For those of you who have been wondering how January's 17-line banner program produces its characters, the mystery is hereupon solved. Observant individuals will have noticed that the characters look remarkably similar to those which appear on your Atari's screen. The reason is that the banner program actually uses the character data

Continued on page 116

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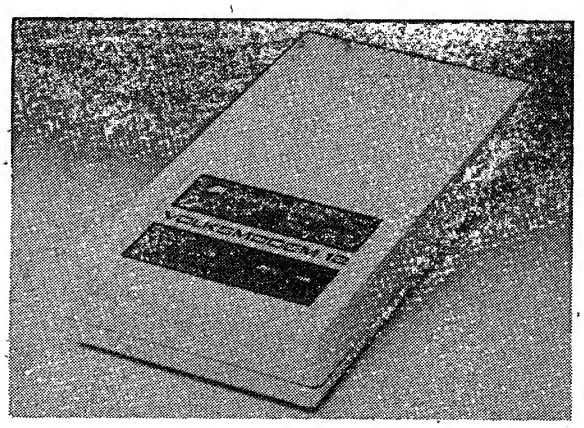

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uses to plot its characters. Now, that's clever! More on this topic in upcoming months.

Computer Assisted Study

Here's the program thousands of students across the country have been waiting for: A program designed to make studying more efficient and enjoyable. Teachers will find this program equally useful for teaching and testing purposes. The three-letter codes preceeding each program line are to be used with December's "Program Perfect," which checks for typing errors. If you do not have "Program Perfect" send me a SASE and request a listing.

This program is most effective with study material that can be arranged in question/answer form. Foreign languages, vocabulary, social studies facts, math formulas, and the like work excellently. It might be necessary, especially when studying foreign languages, to substitute another character for one not existing on the keyboard. For example, the Spanish word for music is MUSICA, with an accent over the "U." It can be entered into this program as "MU'SICA," with an apostrophe following the "U."

After you type in the Computer Assisted Study program, RUN it. A menu will be displayed with the following options:

ENTER NEW DATA
SAVE
LOAD
TEST
ADD DATA
CHANGE DATA
DISPLAY DATA
Enter New Data

When you first RUN this program, you will want to enter some study material. Press the "E" key. You are asked to enter question #1, and then answer #1. Enter a question you want to be asked when you are being tested. If you are entering a vocabulary list, you can just enter one of your vocabulary words. Press RETURN and then enter the answer. If you had typed in a vocabulary word as a question, then you would enter the definition as the answer.

Continue entering questions and answers until you reach a desired number of questions. You may enter up to 100 questions and answers, depending upon the amount of memory your Atari has. A 16K Atari will allow about 21 questions and answers. It is recommended that you test yourself on less than 30 at a time for the best effectiveness. After the last question and answer is entered, enter an asterisk "*" for the "QUESTION" prompt. This returns you to the menu.

Save

After you enter your study data, you can save it on a cassette or diskette. Press the "S" key to select the save option. When asked, specify

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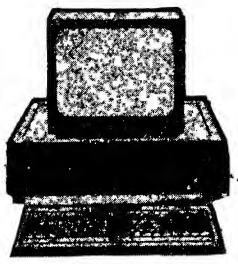

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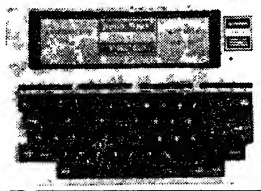

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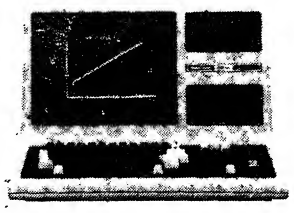

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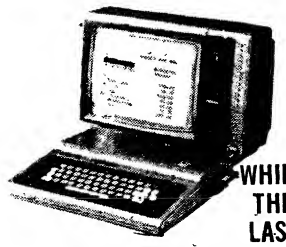

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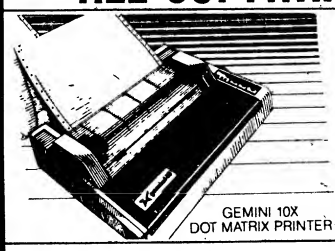

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cassette or disk, and if using a disk, enter a file name. The data you entered previously is saved, and you are returned to the menu.

Load From Cassette/Disk

Whenever you wish to load a previously saved file, press "L." You can save files on all your subjects, and recall them at the end of the year to study for finals! As with the "Save" option, you must specify cassette or disk. If you are loading from disk, enter the name of the file you wish to load. When the file is loaded completely, you are returned to the main menu.

Test

After you enter your study material, press the "T" key. Now you will begin to study. One question is selected at a time from all that you entered. The questions are given in a random order; not in the order in which they were entered. You simply enter the correct answer to each question. If you answer correctly, the computer will print "CORRECT" and will continue with the next word. If, however, you do not enter the right answer, the computer will print "INCORRECT. CORRECT ANSWER:" followed by the answer you should have typed. One powerful feature of this program is that it will give you an incorrectly answered question again at a later time in the testing period. The question will continue to be given until it is correctly answered, thus impressing the answer in your mind. You are not additionally penalized, however, for getting the same question wrong more than once (to prevent negative scores). When all questions are correctly answered, a score is given. The score is the percentage of the number of questions answered correctly the first time given out of the total number of questions. The score allows you to see your progress and to determine how much more studying you need. A score above 90 is given an "EXCELLENT SCORE" reward. After the test is over, you are asked if you wish to take it again. You should continue retaking the test until you get a satisfying score.

Add Data

Press "A" on the menu screen when you want to add more questions and answers to the ones already in memory. Enter an asterisk when you finish entering the data.

Change Data

Press "C" when you wish to change a question or answer in memory. Enter the number of the question/answer that you wish to change. If you want to change the question, enter a "Y" for the "DO YOU WANT TO CHANGE THIS" prompt. To change the answer, enter an "N" for the first prompt, and a "Y" for the second. After a question/answer is changed, you are asked if you wish to make more changes. Enter "Y" to make more changes or "N" to return to the menu.

Display Data

Press "D" to see the data that is currently in memory. Each question and answer is displayed with its corresponding number. You can use this option to make sure the correct data was loaded from cassette or diskette, and to check for errors after material has been entered.

Final Notes

A good rule of thumb is to study the same material over a period of days. Of course, the more you try to study at once, the less effective your studying becomes.

"Isn't it cheating?" concerned parents and teachers might ask. No. Studying by computer is simply another alternative for a student. The material is actually learned, but can be done so in a shorter period of time due to an interest in studying with a computer.

Good luck with Computer Assisted Study. After using it, you might discover that studying does not have to be such a tedious, boring task.

Next Month

We'll have a software alarm clock, more reader mail and some surprises. Stay tuned.

Readers' questions, comments and contributions are welcome.
Address all correspondence to:
Jeff Brenner's
"Applying the Atari"
c/o Computer Shopper
P.O. Box F
Titusville, FL 32781

```
FXJ 10 REM COMPUTER ASSISTED STUDY
EWJ 20 REM BY JEFF BRENNER
PAJ 30 N1=1:N2=N1+N1:N4=N2*N2:N8=N4*N2:N75=75:N76=N75+N1:N100=100:N152=N76*N2
WAJ 40 N151=N152-N1:FM=FRE(N0)-600:DIM A$(FM),I$(N100),QU$(N76),AN$(N76)
SQJ 50 DIM IN$(N76),NAME$(11),K$(11),TEST$(N100)
UVJ 60 OPEN #N1,N4,N0,"K:":I$(N100)=CHR$(N0):A$(FM)=CHR$(N0)
LGJ 70 GRAPHICS N0:POSITION N4,N0:PRINT " COMPUTER ASSISTED STUDY PROGRAM"
QSJ 80 POSITION N2,N4:PRINT "PRESS KEY:"
XEJ 90 PRINT :PRINT "ENTER NEW DATA":PRINT :PRINT "SAVE":PRINT :PRINT "LOAD"
AKJ 100 PRINT :PRINT "TEST":PRINT :PRINT "ADD DATA":PRINT :PRINT "CHANGE DATA"
JWJ 110 PRINT :PRINT "DISPLAY DATA":PRINT :PRINT ">";:GET #N1,K:PRINT CHR$(K)
FUJ 120 RESTORE 130:FOR I=N1 TO 7:READ T:IF T<>K THEN NEXT I:GOTO 70
LZJ 130 ON I GOTO 140,250,370,440,680,700,840:DATA 69,83,76,84,65,67,68
DFJ 140 GRAPHICS N0:PRINT "ENTER NEW DATA":IF NUM=N0 THEN GOTO 170
YXJ 150 PRINT "ERASE OLD DATA";:INPUT IN$:IF IN$(N1,N1)="N" THEN GOTO 70
XWJ 160 NUM=N0
IAJ 170 PRINT "CAN ENTER UP TO ";INT(FM/N152);" QUESTIONS."
QQJ 180 FOR D=NUM+N1 TO N100:I=D*N152-N151:PRINT :PRINT :PRINT
FQJ 190 IF FM-D*N152<N0 THEN PRINT "OUT OF MEMORY":NUM=D-N1:GOTO 920
IYJ 200 PRINT "QUESTION #";D;":":INPUT QU$:IF QU$="*" THEN NUM=D-N1:GOTO 70
HVJ 210 PRINT :PRINT "ANSWER #";D;":":INPUT AN$
OEJ 220 QU=LEN(QU$):AN=LEN(AN$)
PLJ 230 A$(I,I+QU)=QU$:A$(I+N76,I+N76+AN)=AN$
XIJ 240 I$(D*N2-N1)=CHR$(QU-N1):I$(D*N2)=CHR$(AN-N1):NEXT D
GKJ 250 GRAPHICS N0:PRINT "SAVE TO CASSETTE/DISK":GOSUB 950:PRINT
AQJ 260 GOSUB 270:GOTO 330
FDJ 270 PRINT "CASSETTE OR DISK>";:GET #N1,K:K$=CHR$(K):PRINT K$
YOJ 280 IF K$<"C" AND K$<>"D" THEN PRINT CHR$(28);:GOTO 270
ITJ 290 IF K$="C" THEN NAME$="C:":GOTO 320
FZJ 300 POKE 764,255:NAME$="D:":PRINT "FILE NAME:";:INPUT K$
KHJ 310 NAME$(LEN(NAME$)+N1)=K$
AVJ 320 RETURN
AOJ 330 TRAP 360:OPEN #N2,N8,N0,NAME$
LNJ 340 PUT #N2,NUM:PRINT #N2;I$:FOR I=1 TO NUM*N152 STEP N76
RTJ 350 PRINT #N2;A$(I,I+N75):NEXT I:CLOSE #N2:GOTO 70
ADJ 360 CLOSE #N2:PRINT "SAVING ERROR #";PEEK(195):PRINT :GOTO 270
IYJ 370 GRAPHICS N0:PRINT "LOAD FROM CASSETTE/DISK":PRINT :IF NUM=N0 THEN 390
LCJ 380 PRINT "ERASE OLD DATA";:INPUT IN$:IF IN$(N1,N1)="N" THEN GOTO 70
ENJ 390 GOSUB 270
AGJ 400 TRAP 430:OPEN #N2,N4,N0,NAME$
NPJ 410 GET #N2,NUM:INPUT #N2;I$:FOR I=N1 TO NUM*N152 STEP N76
LTJ 420 INPUT #N2;IN$:A$(I,I+N75)=IN$:NEXT I:CLOSE #N2:GOTO 70
CGJ 430 CLOSE #N2:PRINT "LOADING ERROR #";PEEK(195):PRINT :GOTO 390
OMJ 440 GRAPHICS N0:PRINT "TEST - ";NUM;" QUESTIONS/ANSWERS":GOSUB 950
MFJ 450 TEST$(N1)=CHR$(N0):TEST$(N100)=CHR$(N0):TEST$(N2)=TEST$
RBJ 460 WRONG=N0:D=N0
OBJ 470 RM=INT(RND(N0)*NUM)+N1:I=RM*N152-N151:IF TEST$(RM,RM)="A" THEN 470
RPJ 480 IF TEST$(RM,RM)=CHR$(N0) THEN TEST$(RM,RM)="A"
UUJ 490 QU=ASC(I$(RM*N2-N1)):AN=ASC(I$(RM*N2))
YZJ 500 PRINT :PRINT "QUESTION":PRINT A$(I,I+QU)
YYJ 510 PRINT "ANSWER":INPUT IN$
HZJ 520 IF IN$=A$(I+N76,I+N76+AN) THEN 570
NMJ 530 PRINT "INCORRECT. CORRECT ANSWER":PRINT A$(I+N76,I+N76+AN):D=D-N1
SEJ 540 IF TEST$(RM,RM)="A" THEN WRONG=WRONG+1:TEST$(RM,RM)="B"
YNJ 550 FOR I=N100 TO 255 STEP N4:SOUND N1,I,10,N8:NEXT I
TFJ 560 SOUND N1,10,N0,N8:GOTO 590
NVJ 570 PRINT "CORRECT!":TEST$(RM,RM)="A"
SJJ 580 FOR I=10 TO N0 STEP -N1:SOUND N1,N2,6,I:NEXT I
REJ 590 FOR T=N1 TO N100:NEXT T:SOUND N1,N0,N0,N0:D=D+N1:IF D<NUM THEN 470
YQJ 600 SC=INT(((NUM-WRONG)/NUM)*N100+0.5):? "TESTING OVER. YOUR SCORE: ";SC
VIJ 610 IF SC<90 THEN 640
QPJ 620 PRINT "EXCELLENT SCORE":FOR I=200 TO N0 STEP -N2:SOUND N0,I,10,N8
EQJ 630 SOUND N1,I+30,10,N8:NEXT I:SOUND N0,N0,N0,N0:SOUND N1,N0,N0,N0
SFJ 640 PRINT "DO YOU WANT TO TRY AGAIN";:INPUT IN$
AKJ 650 IF IN$(N1,N1)="N" THEN GOTO 70
CTJ 660 IF IN$(N1,N1)="Y" THEN GOTO 440
BWJ 670 GOTO 640
CTJ 680 GRAPHICS N0:PRINT "ADD DATA"
BWJ 690 GOTO 170
KHJ 700 GRAPHICS N0:PRINT "CHANGE DATA":GOSUB 950
FEJ 710 PRINT "QUESTION/ANSWER NUMBER YOU WANT":PRINT "TO CHANGE":INPUT D
VTJ 720 IF D>NUM OR D<N0 THEN PRINT "THAT NUMBER DOES NOT EXIST":GOTO 710
TRJ 730 I=D*N152-N151:QU=ASC(I$(D*N2-N1)):AN=ASC(I$(D*N2))
VBJ 740 PRINT "QUESTION #";D;":";PRINT A$(I,I+QU)
HCJ 750 PRINT "DO YOU WANT TO CHANGE THIS";:INPUT IN$:IF IN$(N1,N1)="N" THEN 780
QZJ 760 PRINT "ENTER NEW QUESTION:";:INPUT IN$:QU=LEN(IN$)-N1
CYJ 770 I$(D*N2-N1,D*N2-N1)=CHR$(QU):A$(I,I+QU)=IN$:PRINT "QUESTION NOW READS:"
QJJ 780 PRINT IN$:PRINT :PRINT "ANSWER #";D;":";PRINT A$(I+N76,I+N76+AN)
SKJ 790 PRINT "CHANGE THIS";:INPUT IN$:IF IN$(N1,N1)="N" THEN 820
SXJ 800 PRINT "NEW ANSWER:";:INPUT IN$:AN=LEN(IN$)-N1:I$(D*N2,D*N2)=CHR$(AN)
YNJ 810 A$(I+N76,I+N76+AN)=IN$:PRINT "ANSWER NOW READS:";PRINT IN$
HMJ 820 PRINT "MORE CHANGES";:INPUT IN$:IF IN$(N1,N1)="N" THEN GOTO 70
BSJ 830 GOTO 710
QUJ 840 GRAPHICS N0:PRINT "DISPLAY DATA":GOSUB 950
BPJ 850 FOR D=N1 TO NUM:I=D*N152-N151
NVJ 860 QU=ASC(I$(D*N2-N1)):AN=ASC(I$(D*N2))
XWJ 870 PRINT :PRINT "QUESTION #";D;":"
VBJ 880 PRINT A$(I,I+QU)
NXJ 890 PRINT "ANSWER #";D;":"
NEJ 900 PRINT A$(I+N76,I+N76+AN)
XRJ 910 NEXT D
OLJ 920 PRINT "PRESS RETURN FOR MENU"
UMJ 930 GET #N1,K:IF K<>155 THEN 920
YXJ 940 GOTO 70
MMJ 950 IF NUM>N0 THEN RETURN
Y6Z 960 PRINT :PRINT "NO DATA HAS BEEN ENTERED.":PRINT :GOTO 920
```

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Review: F-15 Strike Eagle

by Jeff Brenner

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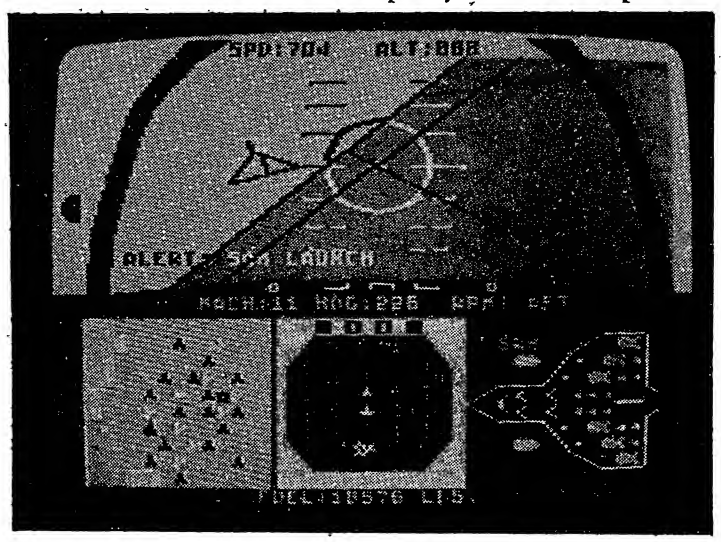
MicroProse Software's newest release, F-15 Strike Eagle, is an impressively realistic air-combat game that puts you in the cockpit of the "High-Tech, All Weather, Air Superiority and Ground Attack Fighter," America's F-15 jet. The game combines the animated graphics of a flight simulator, the excitement of combat weaponry and the program author's technical prowess to yield a truly captivating simulation—certainly the best work from MicroProse that I have seen to date.



F-15 Strike Eagle

Skill Levels and Options

The initial screen is a menu which offers a range of skill levels and a variety of missions. The menu on the Atari version seems sloppily done—colors are thrown about here and there making it difficult to read the text. It's possibly an attempt to create an overwhelmingly colorful menu, but the whole thing looks messy. Luckily, this first screen is not indicative of the quality of the actual game.

Four skill levels are offered: Arcade, Rookie, Pilot and Ace. In the Rookie, Pilot and Ace levels, the maneuvering of the aircraft is authentically reproduced; to turn left, the entire aircraft rolls to the left. The Arcade level offers a more simplified method of control for those who might be confused by the rolling. This level offers direct left, right, up and down motions of the craft corresponding to the movement of the joystick. The other levels offer more progressively difficult games.

One of several missions can also be chosen, each of which varies in the number of targets to be destroyed. The seven missions are situated in Libya, Egypt, Haiphong, Syria, Hanoi, Iraq and the Persian Gulf. Each mission has its own scenario, described in the in-

Continued on page 120

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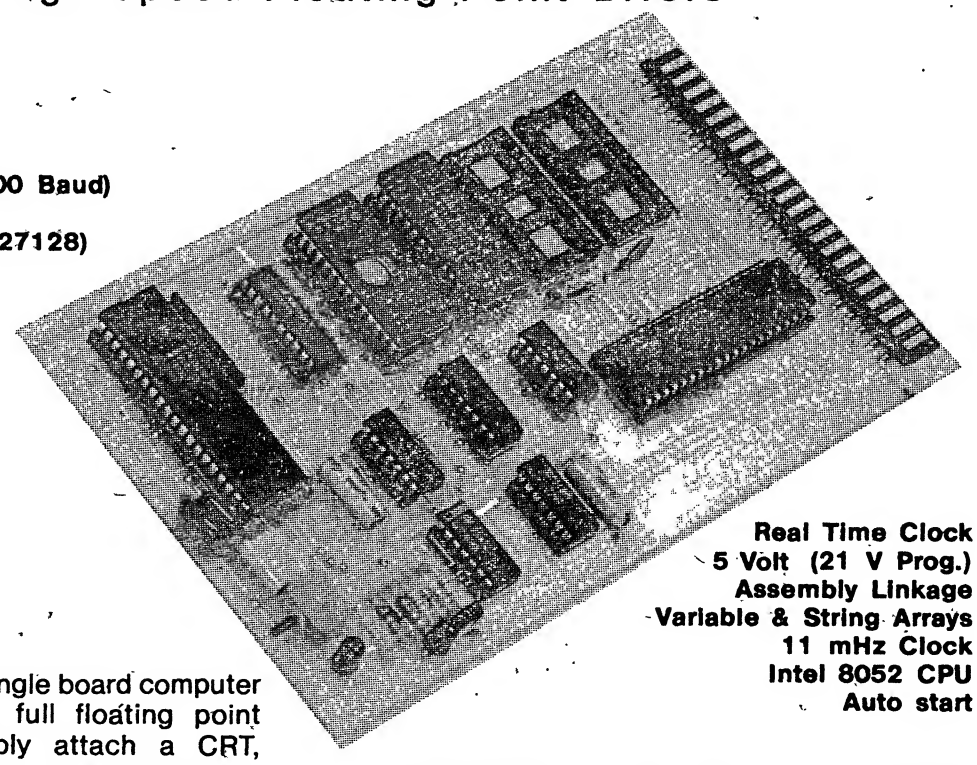

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F-15 Strike Eagle
Continued from page 118

struction booklet, in which you assume the role of either an American or an Israeli fighter. The booklet describes the situation, gives a suggested flight plan, and identifies potential threats. For example, in the Iraq simulation, it is June 7, 1981. An Iraqi nuclear reactor complex, which would be able to create nuclear weapons, is being completed. The object is to destroy the reactor through a secret attack. The flight plan is given as follows:

1) Penetrate air defenses below 1500 feet to avoid radar detection.

2) Bomb the reactor.

3) Bomb any SAM sites or air bases that could endanger this or a follow-up mission.

4) Return to base.

You are also told to be prepared for Iraq's SA-2 and SA-3 radar homing and SA-7 heat seeking SAMs.

Authentication Codes

Before you get to fly, you'll encounter the "Authentication Codes," one of the few reservations I have about this program. The computer will display something such as, "Authenticate (7)." You must then search through the instruction booklet for a small box entitled "TOP SECRET" which contains the parenthesized number and your brand of computer. This box will then tell you a letter to type for this prompt. If you enter the wrong number, you can still fly the plane, but you won't have access to many of the flight and weapons systems. What does this mean? It means that each time you play this game, you must have the instruction booklet with you to look up the proper code, and you must have very good eyesight to see the small letters.

These codes were no doubt included to minimize piracy (you need the instruction booklet to know the codes to play the game) and they were printed in microscopic print as to render photocopying ineffective. I fully support copy-protection techniques, but not when they cause inconvenience to legitimate users. I'm sure many people who have purchased this program will unknowingly be playing it without many of its features, either because the codes are too small to read, or because the whole code business is poorly described in the manual. I hope that MicroProse does not continue with this poorly devised protection scheme in their future programs.

The Heads-Up-Display

After you've chosen a skill level and mission and have looked up the authentication codes, the simulation begins. The well-designed display consists of four component screens.

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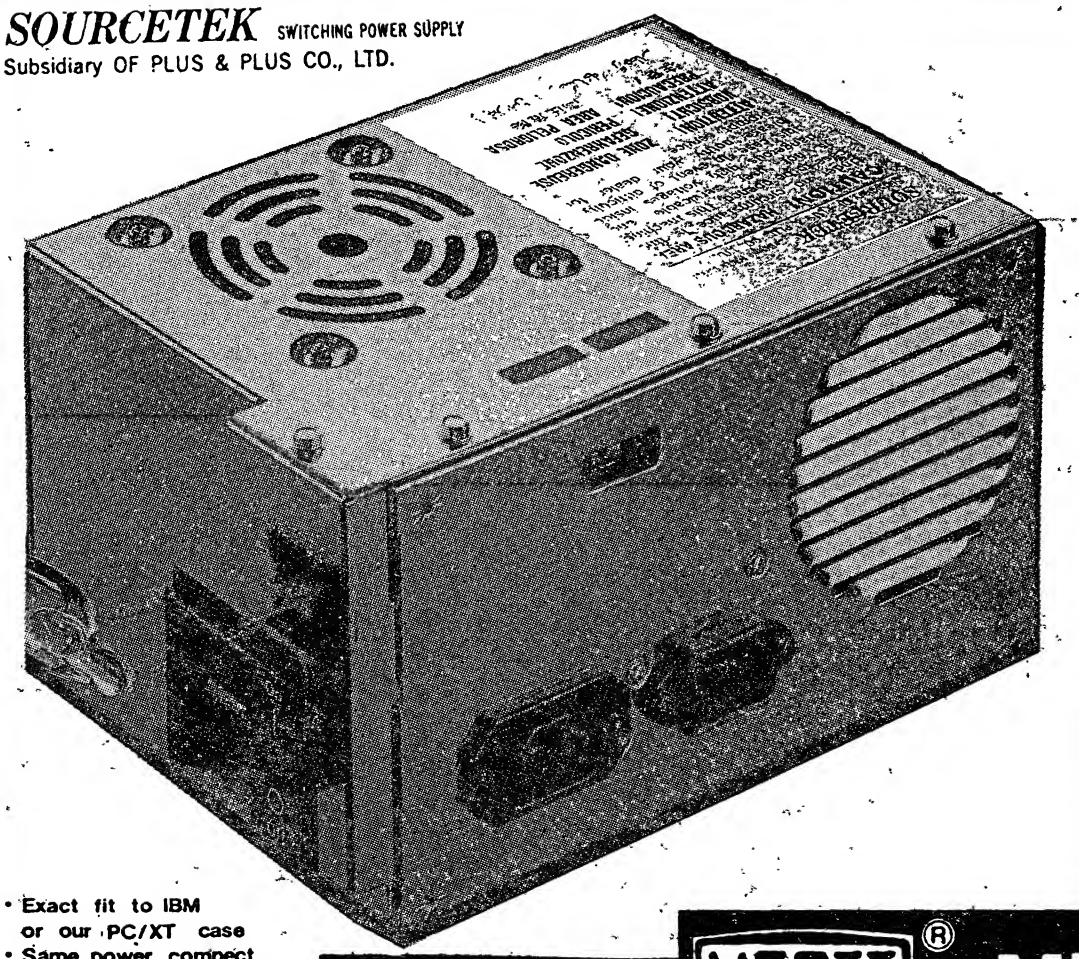

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F-15 Strike Eagle
Continued from page 120

At the top, comprising one-half of the screen, is the Heads-Up-Display (HUD). The top of the HUD gives airspeed and altitude readings. An air-to-air reticle helps to aim guns and missiles for firing at airborne targets. An air-to-ground reticle appears on-screen when a bomb is to be launched for aiming at ground sites. Various markers also appear on the display, such as a target designator box and a missile designator box, for tracking these objects. All messages are communicated through the HUD. Messages such as "MISSILE ARMED," "ENEMY PLANE HIT," or "ALERT:SAM LAUNCH" appear when the appropriate situations occur.

Other Displays

The Horizontal Situation Display (HSD) is one of three smaller screens located below the HUD. The HSD consists of a map of the entire region over which you will be flying during the particular mission you have selected. Symbols on the map indicate your position and direction, the location of primary targets, enemy airfields, SAM sites and your base. It all sounds nice, but the HSD is even more useful. Using the cursor keys, you can move a "navigation cursor" over the position you wish to reach on the map. Then, on the HUD, a repeating series of letters "N," "A," and "V" serve as a steering cue. By directing your craft towards the cue, you will be flying in the direction of the desired location.

The Radar-Electronic Warfare Display (REWD) gives a radar view of the objects near your craft, such as missiles and enemy aircrafts. It also displays the various air targets. Included with the REWD are infrared and radar detectors which alert you to the presence of other ships or missiles.

The Weapons Status Display displays the complete inventory on-board the F-15. It lets you see how many bombs, missiles and flares remain.

Graphics and Sound Effects

Overall, the graphics are well done and the sound effects of the motor and artillery fire are authentic. The view through the HUD gives a convincing feeling of flight—the entire scene tilts as the plane rolls, and the surface below changes from green to blue once you're over water. The author could have made the graphics even better by making a distinction among the land sites. As it is, the enemy airports, primary targets, SAM sites and home base all look the same.

Controls

The joystick is used to control the general motion of the F-15 and to fire weapons. A second joystick can be used to control the throttle, speed brakes, afterburners and the weapons selector, although I find it more convenient to use the keyboard. The keyboard is also used to activate the gun and bomb modes, to select either short or medium range missiles, to release chaff as a

Continued on page 124

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F-15 Strike Eagle
Continued from page 122

radar jammer, to deploy flares to decoy heatseeking missiles, to drop the external fuel tanks when they are no longer needed and to change the radar range. A pause key is provided as well as a bail out key for desperate situations. If you bail out, you have a 50% chance of being rescued.

The simulation ends when you return to base. You are then given points for destroying SAM sites, enemy airports and planes. If you hit the primary target, your mission is a success and you get to tackle the next challenging mission.

Documentation

Even the 36-page documentation adds to the realism of this simulation. The booklet is entitled "Flight Operators Manual" with a "Technical Order No. 1-F-15E-1." Comprehensive descriptions of most of the features are included. Several pages are devoted to the technical analysis of the F-15, including sections on basic aerodynamics, turning performance, and the F-15's performance envelope. Recommended offensive and defensive air combat maneuvers are discussed, as well as bombing techniques. Details are given on the various types of aircraft and SAMs to be encountered during the simulation. At the end of the manual, each of the missions is detailed and maps of the areas are shown.

There is a problem with the manual, though, in that perhaps too much of it is devoted to unnecessary technical details and combat theories at the expense of directions needed to actually play the game. As I said previously, the authentication codes are not made clear enough. An even more serious fault is the failure to describe how to land the F-15 at your base. If you can't bring your craft to base, you can never complete a mission! I learned, through practice, that you must bring your F-15 in direct line with your base, and as close as possible to it. I don't know how MicroProse could have excluded this important piece of information.

In summary, F-15 Strike Eagle is challenging and thrilling. The attention to detail breeds realism, and the realism breeds excitement. This one was made to satisfy demanding players.

Ratings For F-15 Strike Eagle

*Poor**Fair***Good****Excellent

Program Design	***
Amusement Level	****
Documentation	***
Value	***
Average	***

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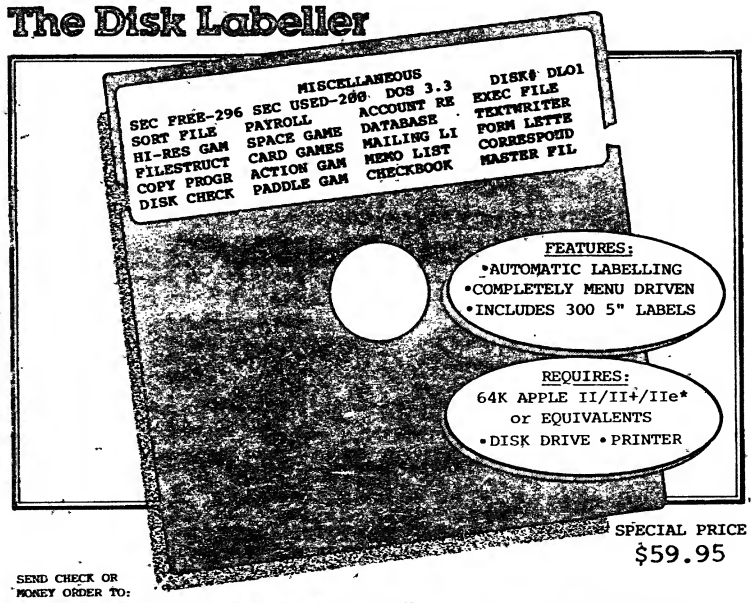

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